Evidence-based care: 1. Setting priorities: How important is this problem?

Evidence-Based Care Resource Group

There are important gaps between research evidence and clinical practice. Any effort to narrow them must include setting priorities for assessment, establishing effective manoeuvres, and measuring and improving performance. Because physicians have limited time the first step is to set priorities with the use of explicit criteria to ensure that time and other resources are invested where they can have significant benefit. Useful criteria include the frequency of the problem, the magnitude of its consequences, the availability of research evidence addressing it and the likelihood that its management can be improved.

Les écarts entre les résultats de recherche et la pratique clinique sont importants. Tout effort en vue de les refermer doit passer par l'établissement de priorités d'évaluation et d'interventions efficaces, ainsi que la mesure et l'amélioration du rendement. Comme les médecins ont peu de temps, il faut d'abord établir des priorités fondées sur des critères explicites afin d'assurer qu'on investit le temps disponible et les autres ressources là où ils peuvent avoir un effet important. Parmi les critères utiles, mentionnons la fréquence du problème, l'ordre de grandeur de ses répercussions, la disponibilité des résultats de recherche à ce sujet et la probabilité d'amélioration du traitement.

Strong evidence available by the mid-1950s challenged claims that diethylstilbestrol had beneficial effects on the outcome of pregnancy. Yet physicians continued to prescribe it needlessly to tens of thousands of pregnant women until the early 1970s, when evidence of its carcinogenic potential emerged.[1,2] During the past three decades the recommendations of clinical experts were in discord with results of randomized controlled trials of therapy for myocardial infarction.[3] Treatments proven effective, such as thrombolytic and acetylsalicylic acid (ASA) therapy, were rarely recommended and were often underused. At the same time, other treatments that did not have proven benefits and may have even been harmful, such as the use of calcium-channel blockers and antiarrhythmic agents, were recommended and used inappropriately.

Although the extent of such gaps between research evidence and clinical practice is difficult to ascertain, it is not hard to understand why they occur. The medical literature is vast, and clinicians have limited time to read it. Other factors, such as concerns about liability,[4] sometimes influence physicians to practise in ways inconsistent with research evidence.[5]

Organized efforts to reduce the gaps between evi-

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dence and practice and to improve medical care have evolved under several rubrics: quality assurance,[6] total quality management and continuous quality improvement,[7] technology assessment,[8] outcomes management,[9] practice guidelines,[10] audit[11] and continuing medical education.[12] Various approaches under each of these rubrics have met with scepticism from many physicians,[13,14] at least some of which comes from a straightforward concern that these efforts will waste scarce resources without substantially improving patient care. If quality assurance programs reduce the already limited time physicians have to cope with the scientific literature they may even contribute to the gaps between evidence and practice.

We begin this series with three premises derived from our own efforts to ensure that we provide our patients with care based on sound evidence. First, we have found important gaps between evidence and the care we provide, and we believe such gaps are more common than most physicians would like to admit. Second, we have little time to track down evidence or monitor our practice, and we believe few clinicians do. Third, we want to provide our patients with effective care, and we believe that other physicians generally share this attitude.

We will focus on the steps essential to improving the effectiveness of medical care: setting priorities for assessment, establishing which manoeuvres are effective, and measuring and improving performance (Fig. 1).[15–17] We do not intend to espouse the merits of a particular approach to quality assurance or to pretend to have pat solutions. Rather, we will present a simple framework that we have found useful in practising evidence-based medicine.[18]

Framework for evidence-based care

Because most physicians must manage a wide range of clinical problems with limited time, the first step is to decide when it is important to track down evidence or measure performance by setting priorities for which problems to pursue (to be addressed later in this article).

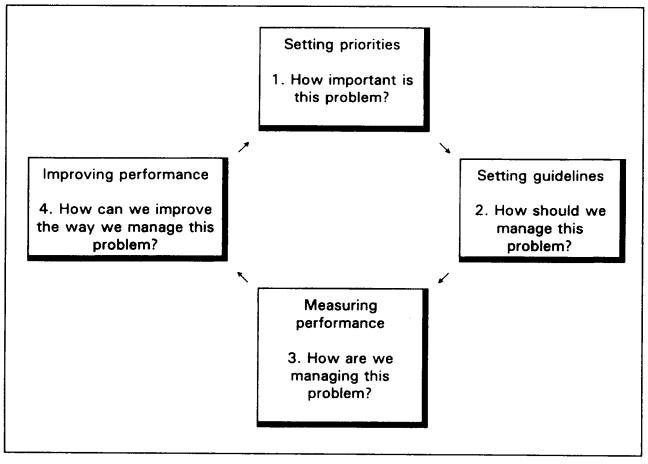

Fig. 1: Framework for providing evidence-based care.

The second step is to determine an appropriate strategy for managing important problems. Some approaches are so dramatically effective that little or no formal evaluation is needed (e.g., giving epinephrine to a patient in anaphylactic shock). For most clinical problems, unfortunately, the effectiveness of different forms of care is not so obvious, and rigorous evaluations are needed for an unbiased estimate of effectiveness. Ultimately, for patients to benefit from these evaluations physicians must be aware of the results and apply them appropriately by making informed judgements about effectiveness of treatments and about values or preferences.[19] To guard against errors in both types of judgements it is useful to make them explicit. In the second article of the series we will describe a practical approach to developing explicit, evidence-based practice guidelines from the perspective of a busy clinician.

After the preferred management of a problem has been determined, the next step is to ascertain whether physician performance is consistent with this management. It is important to distinguish between perceptions and actual performance. Since we started regular audits of our own practices, we have discovered discrepancies between what we thought we were doing and what we were actually doing. For example, in one of our practices we were surprised to find that although we thought we were routinely prescribing ASA and ß-blockers to patients after myocardial infarction, most of the patients who should have been prescribed these drugs were not. Similarly, we found the proportion of inadequate Papanicolaou smears to be higher than we had believed. We also discovered that benzodiazepines were prescribed without a clear indication more often than we thought. Some patients screened for high blood cholesterol levels should not have been screened, and other patients not screened should have been. In the third article in this series we will discuss when and how to audit performance.

If performance is less than optimal, improving it is the next step. Our fourth article will focus on strategies for improving performance and identifying roadblocks to improvement. Because medical evidence and the practice environment are continually evolving, at this point the framework returns to the first step: deciding the importance of the problem after the first four steps have been completed.

In the last article of this series we will describe strategies for learning, applying and teaching the skills needed to provide evidence-based care.

Setting priorities

A wide range of health care organizations have recognized the need to set priorities for assessing the effectiveness of care.[20,21] Owing to rapid development of medical technology and finite resources these organizations

must make explicit or implicit choices about how to allocate funds and staff time. Similarly, physicians must make choices about how to use their time.

Explicit criteria for setting priorities, such as those in Table 1, may help ensure that time and other resources will be invested where they can have significant benefit. Such criteria include the frequency of the problem, the magnitude of its consequences, the availability of research evidence addressing it and the likelihood that we can improve its management. The first two considerations can be applied to a condition (e.g., diabetes), a group of patients at risk (e.g., teenagers at risk of unintended pregnancy) or an intervention (e.g., use of a diagnostic test). The considerations of available evidence and probability of improving management require clearer identification of the options and the outcomes. (Examples of other priority-setting criteria are shown in Table 2).

Alternatively, a system-based approach may be more useful than a condition-based one. How a practice is organized and whether technology such as computerized medical records are used can have important effects on the quality of care. For example, questions have been raised about the continuity of care in a large group practice,[24] about whether nurses should undertake some tasks normally performed by physicians,[25] about the effectiveness of telephone follow-up of patients with chronic conditions[26] and about the effect of alternative continuing medical education activities on quality of care.[12] Similar questions can be raised about technology that may contribute to the quality of care in general, such as the use of computerized reminders for periodic health examinations[27] or of computerized medical records to facilitate audit and feedback.[5]

System-based problems are considered common to the extent that they affect the delivery of health services to large numbers of patients. For condition-based problems, it makes sense to give priority to common conditions. For problems that we encounter rarely, it is often

Table 2: Examples of priority-setting criteria

Institute of Medicine[20,21]
Objective criteria
Prevalence of the condition
Cost of technology used to manage the condition
Variation in use of this technology
Subjective criteria
Burden of illness
Potential to change health outcomes
Potential to change costs
Potential to clarify ethical, legal or social issues
College of Family Physicians of Canada[23]
Frequency of condition
Seriousness of health consequences
Effect of intervention
American College of Physicians[20]
Potential significant health benefit
Potential risk
Potential wide application
Extent of interest to practitioners
American Medical Association[20]
Potential impact on substantial patient population
Controversy within the medical community
Availability of scientific data to support evaluation

Table 1: Criteria for setting priorities to improve the effectiveness of medical care

Criterion	Example
General clinical problem	Hypertension
Is the problem commonly seen in practice?	Yes
Does the problem have important consequences?	Yes
What are the potential health benefits of treatment?	Reduced risk of stroke and myocardial infarction[22]
What are the potential risks of treatment?	Side effects of drugs, patient labelling
What are the costs of treatment?	Costs of drugs and office visits
Specific clinical question	Do antihypertensive drugs reduce the risk of cardiovascular events in elderly patients with systolic hypertension sufficiently to warrant the risk of side effects?
Is there likely to be good evidence addressing the problem?	Yes
What are the identifiable patient characteristics?	Elderly patients with systolic hypertension
What options are available?	Antihypertensive drugs
What are the measurable outcomes?	Cardiovascular events
Is there potential for change in how this problem is managed?	Yes
Is there uncertainty about appropriate management?	Yes; benefits and risks of drug therapy are unclear
Is it feasible to implement change?	Yes; drugs are widely available, well tolerated and inexpensive
Is there physician motivation to change practice?	Yes; physicians are highly motivated to treat patients if there is evidence of the effectiveness of such treatment

appropriate to seek the advice of a specialist for whom the problem is more common. This is not to say that patients with uncommon problems should be given a low priority; rather, it is reasonable for physicians to allocate a larger proportion of their time to ensuring the quality of the care that they commonly provide.

Similarly, it makes sense to give priority to problems with important consequences, whether potential health benefits or potential risks and costs. Although physicians should not withhold effective care on the basis of cost, they should take into consideration costs borne by the patient. Also, it is appropriate for physicians to consider costs when developing policies or guidelines for common problems. For example, there is good evidence that routine ultrasonography in early pregnancy results in earlier detection of multiple pregnancies and a reduced rate of induction of labour for apparent post-term pregnancy, and there is no solid evidence that it is harmful.[28] Those considering a policy of routine versus selective ultrasonography in early pregnancy must weigh, implicitly or explicitly, the value of the demonstrated benefits against the cost.

After physicians have decided that a problem is a priority based on the first two criteria, they must focus on the characteristics of the patients affected, the relevant options (e.g., diagnostic tests, drugs, surgery, counselling or interventions to improve provider performance) and the important consequences. It is then possible to formulate specific questions and assess the likelihood that they can be answered. For example, in the example in Table 1, if we conclude that hypertension is a priority based on the first two criteria (it is a common condition with important consequences), we might then focus on the question of whether antihypertensive drugs (the options) reduce the risk of cardiovascular events (the potential health benefits) in elderly patients with isolated systolic hypertension (the patients) sufficiently to warrant the risk of side effects (the risks). Because hypertension is a common problem with widely available treatment options and important, measurable consequences, there is a good chance of finding good evidence to answer the question.

The fact that compelling evidence concerning the treatment of systolic hypertension in the elderly was only recently published[29] emphasizes the importance of the iterative application of the evidence-based-care framework to common important problems; if such problems are the focus of continuing research, it is necessary to decide when the evidence should be reassessed. (We will return to the example of systolic hypertension,

Table 3: Examples of conditions identified as priorities by health care organizations

Institute of Medicine[20]	University of Ottawa*[34]
Breast cancer	Abdominal pain
Cataracts	Anxiety
Chronic obstructive pulmonary disease	Bronchitis
Coronary artery disease	Contraception
Gallbladder disease	Depression
Gastrointestinal bleeding	Diabetes
HIV infection	Obesity
Joint disease and injury	Otitis media
Low-back pain	Pharyngitis
Osteoporosis	Prenatal care
Pregnancy	Preventive health examination
Prostatism	Rhinitis
Psychiatric disorders	Uncomplicated hypertension
Substance abuse	Well-baby care
College of Family Physicians of Canada[33]	Wigle and associates†[35]
Acute bronchitis	Abdominal hernia
Acute laryngitis and tracheitis	Appendicitis
Acute otitis media	Asthma
Appendicitis	Cervical cancer
Asthma	Cholecystitis and cholelithiasis
Cholecystitis and cholelithiasis	Chronic rheumatic heart disease
Chronic bronchitis and emphysema	Hodgkin's disease
Cystitis	Hypertensive heart disease
Depression	Influenza
Diabetes	Maternal death
Hypertension	Pneumonia and bronchitis
Iron deficiency	Stroke
Obesity	Tuberculosis
Pneumonia	

*List of common and important medical problems seen in primary care, based on synthesis of six rankings of their frequency.
†Most frequent preventable causes of premature death in Canada by medical intervention, 1982–1986.

and what the current evidence suggests we should be doing, in the next article in this series.) To take another example, after a 1992 review of the effectiveness of mammographic screening for breast cancer this problem was flagged for reassessment in 1 year in anticipation of the forthcoming results of the Canadian Breast Cancer Screening Study.[30–32]

Finally, after one or more important questions have been formulated, how likely is it that the answers will improve the effectiveness of patient care? One measure of the potential for improvement is the degree of certainty about how the problem should be or is managed. If physicians are unsure about how well a problem is managed and there is good evidence addressing it, practice will likely improve. Another measure of such potential is the feasibility of implementing needed change; that is, the accessibility and practicality of acceptable alternatives. A third such measure is physician motivation. If a problem is important, personal interest is somewhat irrelevant; moreover, focusing solely on problems that pique your interest may lead to ineffective use of time. However, forcing yourself to spend time on something that does not interest you may also be ineffective.

Fortunately, most physicians are highly motivated to provide their patients with the best possible care. However, to the extent that they simply find some problems more interesting than others, physicians can take comfort that this is likely true for their colleagues as well. Since all physicians have limited time and varying interests, it pays to work together.

A good way to get started is to list priorities with some colleagues (in person or electronically) and to compare them with those identified by others, such as the lists of conditions in Table 3. Keep in mind that you do not need to address all of the problems at once. Also, it is possible to capitalize on what others have already done by beginning with scientifically sound overviews[36] or practice guidelines[37] rather than with original research reports. By working with colleagues to tackle, say, one problem each month, it is possible to cover a lot of territory in a year and move steadily towards ensuring that you are providing evidence-based care.

In our next article we will describe an approach to determining appropriate strategies for managing important problems. Such an approach requires four key steps: formulating questions that can be answered, finding and critically appraising the evidence needed to answer the questions, estimating the expected benefits, harms and costs of each option, and judging the relative value of these benefits, harms and costs. Even after priorities are set, determination of appropriate strategies entails a lot of work, and we will continue to emphasize working as practically and efficiently as possible.

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Conferences
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May 20–21, 1994: 3rd International Perinatal and Gynecological Ultrasound Symposium
Ottawa
Study credits available.
Ms. Nicole Belisle, Department of Obstetrics and Gynecology, Ottawa General Hospital, Rm. 8420, 501 Smyth Rd., Ottawa, ON K1H 8L6; tel (613) 737-8566, fax (613) 737-8470

May 20–23, 1994: International Conference on Heart Failure — Frontiers of Molecular, Cellular and Clinical Cardiology (sponsored by the Council of Cardiac Metabolism of the International Society and Federation of Cardiology)
Winnipeg
Study credits available.
Division of Cardiovascular Sciences, St. Boniface General Hospital Research Centre, 351 Taché Ave., Winnipeg, MB R2H 2A6; tel (204) 235-3417, fax (204) 233-6723

May 24–28, 1994: 9th International Congress on Group Medicine Private Health Systems
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May 25–28, 1994: Functional Diversity of Interacting Receptors
Washington
Geraldine Busacco, conference director, New York Academy of Sciences, 2 E 63rd St., New York, NY 10021; tel (212) 838-0230, fax (212) 838-5640

May 25–28, 1994: 10th Canadian Heart Health Network Meeting — Women and Families: the Heart of the Matter
Saint John, NB
Sharon Elliott, Secretariat, Canadian Heart Health Network, 200–160 George St., Ottawa, ON K1N 9M2; tel (613) 241-4361, ext. 317

May 26–28, 1994: Canadian Pain Society Annual Meeting
Halifax
Canadian Pain Society Secretariat, c/o Pain Management Unit, Victoria General Hospital, 1278 Tower Rd., 4th floor, ACC, Halifax, NS B3H 2Y9; tel (902) 428-4130, fax (902) 425-2593

Du 26 au 28 mai 1994 : Société canadienne pour le traitement de la douleur assemblée annuelle
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Secrétariat de la Société canadienne pour le traitement de la douleur, a/s Pain Management Unit, Victoria General Hospital, 1278, rue Tower, 4e étage, ACC, Halifax, NS B3H 2Y9; tél (902) 428-4130, fax (902) 425-2593

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